

**BEFORE
THE PUBLIC SERVICE COMMISSION
OF SOUTH CAROLINA
DOCKET NO. 2019-185-E**

IN RE: South Carolina Energy Freedom Act)	
(H.3659) Proceeding to Establish Duke)	
Energy Carolinas, LLC's Standard Offer,)	
Avoided Cost Methodologies, Form)	
Contract Power Purchase Agreements,)	INTERVENOR, SOUTH CAROLINA
Commitment to Sell Forms, and Any)	SOLAR BUSINESS ALLIANCE, INC.'S
Other Terms or Conditions Necessary)	THIRD INTERROGATORIES AND
(Includes Small Power Producers as)	REQUESTS FOR PRODUCTION
Defined in 16 United States Code 796, as)	
Amended) - S.C. Code Ann. Section 58-)	
41-20(A))	
)	

Intervenor South Carolina Solar Business Alliance, Inc. (“SCSBA”), pursuant to Reg. 103-833 and S.C. Code Ann. § 58-41-20(J), which requires that “Each electrical utility's avoided cost filing must be reasonably transparent so that underlying assumptions, data, and results can be independently reviewed and verified by the parties and the commission,” hereby serves Duke Energy Carolinas, LLC (“DEC”) with SCSBA’s Third Interrogatories and Requests for Production, to be answered separately within twenty (20) days from the date of service hereof. Please set forth DEC’s answers separately, after restating the question.

These Interrogatories and Request for Production shall be deemed continuing, and if complete production to any of them is not presently available, and the information becomes available before trial, supplemental production is required at such time as this information becomes available to DEC.

INSTRUCTIONS

1. All information shall be provided to the undersigned in the format as requested.
2. All responses to the below Interrogatories and Requests for Production shall be labeled using the same numbers as used herein.
3. If the requested information is found in other places or in other exhibits, reference shall not be made to those, but, instead, the information shall be reproduced and placed in the responses to these Requests for Production in the appropriate sequence.
4. Any inquiries or communication relating to questions concerning clarifications of the data requested below shall be directed to the undersigned.
5. All exhibits shall be reduced to an 8 1/2" x 11" format.
6. Each Request shall be reproduced at the beginning of the response thereto.
7. DEC shall provide the undersigned with responses to these Interrogatories and Requests for Production as soon as possible but **not later than twenty (20) days from the date of service hereof.**
8. If the response to any Requests for Production is that the information requested is not currently available, please state when the information requested will become available.
9. These Interrogatories and Requests for Production shall be deemed continuing so as to require DEC to supplement or amend its responses as any additional information becomes available up to and through the date of trial.

10. If a privilege not to answer a Request is claimed, identify each matter as to which the privilege is claimed, the nature of the privilege, and the legal and factual basis for each such claim.

11. If a refusal to respond to a Request is based on the grounds that same would be unduly burdensome, identify the number and nature of documents needed to be searched, the location of the documents, and the number of hours and costs required to conduct the search.

12. Answer each Request on the basis of the entire knowledge of DEC, including information in the possession of DEC or its consultants, representatives, agents, experts, operating divisions, business divisions, assigns, partners, and attorneys, if any.

13. If any Request cannot be answered in full, respond to the extent possible and specify the reasons for DEC's inability to produce.

14. Please provide copies of the information responsive to this request in native electronic working format with all data and formulas intact.

DEFINITIONS

As used herein, the following terms shall have the meaning and be interpreted as set forth below:

1. "You" or "your" shall refer to DEC, or affiliate, any agent, employee, official, or consultant thereof.

2. The conjunctions "and" and "or" shall be interpreted in each and every instance as meaning "and/or" and shall in neither instance be interpreted disjunctively to exclude any document or information otherwise within the scope of any description or request made herein.

3. “Avoided Cost,” “Avoided Cost Rates,” “Avoided Cost Methodology,” and “Avoided Cost Calculations” shall have the meanings assigned to them under S.C. Code Ann. §§ 58-41-10 and 58-41-20, and shall include without limitation avoided energy, avoided capacity, and the cost of ancillary services produced or consumed by small power producers as provided in S.C. Code Ann. § 58-41-20(B)(3).

4. “Document” shall mean all originals of any nature whatsoever, identical copies and all non-identical copies thereof, pertaining to any medium upon which intelligence or information is recorded in DEC’s possession, custody or control, or other tangible objects regardless of where located; including, without limiting the generality of foregoing, punch cards, print-out sheets, movie film, slides, photographs, records, work papers, source documents, microfilm, notes, letters, memoranda, ledgers, worksheets, books, magazines, notebooks, diaries, calendars, appointment book registers, charts, cable, papers, agreements, contracts, purchase orders, acknowledgements, invoices, authorizations, budgets, analyses, projections, transcripts, minutes of meeting of any kind, correspondence, telegrams, drafts, data processing disks or tapes, or computer-produced interpretations thereof, instructions, announcements, schedules, and price list. Media includes data on computers, laptop computers, netbook computers, cell phones, telephones, PDA’s, Blackberry’s or Blackberry type devices, smart phones, external hard drives and flash drives or storage devices of any type, of DEC and specifically includes the computer and or laptop computers utilized by Representatives of DEC. Media means media, as broadly as the term “media” may be defined, that contains electronic data, as to the Interaction between SCSBA and DEC.

5. “Identify” or “identity” used with reference to an individual means to state his or her full name, present or last known address, present or last known position and business affiliation, and employer, title, and position at the same time in question.

6. “Identify” or “identity” used with reference to a writing means to state the date, author, type of document (e.g. letter, memorandum, telegram, chart, note, application, etc.) or other means of identification, and its present location or custodian. If any such document is no longer in DEP’s possession or subject to their control, state what disposition was made of the document(s).

7. All references to the singular contained herein shall be deemed to include the appropriate plural number and all references to the plural shall be deemed to include the singular. All references to the masculine gender contained herein shall be deemed to include the appropriate feminine and neuter genders.

INTERROGATORIES

1. Please describe in detail all measures You have taken, plan to take, or are considering taking during the last five (5) years or over the next ten (10) years in order to reduce or mitigate winter peak events on Your System, including but not limited to demand response or other demand-side management measures and purchases from other utilities or PJM. Please quantify your projections of the amount of additional capacity, demand reduction, or other mitigation you have achieved or project achieving using each method during the last five (5) years and over the next ten (10) years; and explain how these measures have been accounted for in modelling the loss of load risk.
2. Has DEC or DEP included a fuel hedge value in its avoided energy cost rate? If it has not, please explain in detail the rationale for this change.
3. Please refer to Snider Direct Testimony, p.19, which states: “seasonal allocation [of avoided capacity payments] is now heavily weighted to winter based on the impact of

summer versus winter loss of load risk, which has been driven by the volatility in winter peak demand.” Please describe the bases for this claim.

- a. If Astrape Consulting’s 2016 Resource Adequacy studies were used to support these claims, please describe how the conclusions of the studies were applied to calculations of capacity value or resource adequacy as represented in Mr. Snider’ and Mr. Wintermantel’s testimony.
4. Please explain if an independent technical or peer review has been conducted on Astrape’s Solar Capacity Value Study. If no review was conducted, please provide examples where the LOLEflex metric was used for calculating integration charges elsewhere in the United States.
5. Please provide the following calculations based on SERVVM model runs:
 - a. Avoided Energy Cost rates using 10-year forward market natural gas prices that are both 10% higher and 10% lower than those used to set the proposed Avoided Energy Cost rates.
6. In reference to the statement on page 2 of Your Joint Application that “Act 62 requires the Commission’s decisions in this proceeding to “strive to reduce the risk placed on the using and consuming public”:
 - a. Please describe Your position with regard to what “risks” this provision of Act 62 (codified in S.C. Code Ann. § 58-41-20(A)) refers to.
 - b. Do the “risks” referred to in this Section include the risks that ratepayers will be assessed costs associated with utility-developed generating projects that fail to achieve commercial operation, exceed cost estimates, experience delays, or fail to deliver energy and capacity at the prices projected by the utility? If You maintain that “risks” as used in Section 58-41-20(A) does not include any of these categories of risks, please explain in detail the rationale for this conclusion.
7. With regard to the statement on page of Mr. Brown’s testimony that “the Companies have almost 4,000 MW of QF PURPA power under contract on a system basis”:
 - a. what percentage of DEC and DEP’s total capacity portfolio do QF power purchases represent?
8. Please describe in detail, including specific calculations, the bases for the statements on pages 9-10 of Mr. Brown’s testimony that “Based on the almost 4,000 MW of solar QF power that have executed PPAs with the Companies under PURPA’s mandatory purchase obligation, the estimated financial obligation to customers is approximately \$4.66 billion over the next approximately 15 years,” and that “If these contracts were valued at today’s

avoided cost rates, the Companies calculate that they would have a value of only \$2.40 billion, as a result of declining avoided cost rates.”

- a. What percentage of DEC’s and DEP’s total projected expenditures for energy and capacity over this same time period do the QF contracts referenced by Mr. Brown represent?
9. With respect to the statement on page 14 of Mr. Snider’s testimony that “Given that the Companies’ practice is to build multiple units at a new site, the Companies adjusted the EIA data to reflect the economies of scale associated with land, buildings, roads, security, gas interconnection and other infrastructure for a 4-unit CT site”:
 - a. Please describe in detail how the EIA data were adjusted to reflect the economies of scale of constructing a 4-unit CT site, and provide all calculations reflecting this “adjustment”.
 - b. With respect to each CT site constructed by DEC or DEP in the last 10 years, or planned to be constructed in the next 10 years, please state the number of CT units at each site, and specify whether those units were constructed as part of the same project(s) or as part of different projects.
 10. With respect to Your Avoided Cost Calculations for standard offer QFs:
 - a. On what date do you assume standard offer projects will begin delivering power, for purposes of calculating Avoided Cost rates? Please describe in detail the bases for this assumption.
 - b. Please state the actual in-service date for each QF projects that has contracted with DEC or DEP under the Schedule PP (SC) and Schedule PP-2 tariffs approved by the South Carolina Public Service Commission in Docket No. 1995-1192-E, Order No. 2016-349.
 11. Please describe the methodology(ies) used by You to calculate the cost or value of “ancillary services provided by” small power producers, as referenced in S.C. Code Ann. § 58-41-20(B)(3).
 12. With respect to the calculation of Avoided Cost values for “non-Standard Offer PPA QFs,” as described on page 29 of Mr. Snider’s testimony:
 - a. Please describe in detail the “generation profile” used by the Company to calculate avoided cost values for “non-standard Offer PPA QFs,” including the source(s) of data used to create this generation profile.
 - b. How will the generation profile be “updated” in the future, as referenced in Mr. Snider’s testimony?

- c. Please describe in detail the basis for Mr. Snider's statement that using a "solar-specific generation profile" will "ensure that the avoided energy rates calculated for non-Standard Offer PPA QFs most precisely equal the Companies' actual avoided cost"?
13. Please provide a detailed definition of the term "controlled solar generator," as it is used in Mr. Snider's testimony, and the specific criteria (including but not limited to equipment configuration, operational conditions, and contractual requirements) You propose to use to determine whether a specific facility qualifies as a "controlled solar generator."
14. Please provide a detailed quantification of the "historical realized operating reserves" (as that term is used in Mr. Wintermantel's testimony) maintained by DEC and DEP, on a monthly basis, over the last ten (10) years. Please identify which portion of these reserves are spinning reserves versus non-spinning reserves. Please identify which portion are designated as contingency reserves.
15. Please identify any NERC or SERC standards that require Duke to maintain an LOLEflex of 0.1.
16. Please refer to Wintermantel Exhibit 2, Tables 20 and 21 which indicates the Total Load Following Addition.
 - a. Please provide the total amount of load following required (rather than incremental additions) in each case.
 - b. Please provide the total amount of all other operating reserves required in each case, including spinning reserves, quick start reserves, and regulation.

REQUESTS FOR PRODUCTION

1. If you have not already done so, please produce all documents relating to "the Companies' 2019 IRP Update" referenced on page 11 of Your Joint Application, including but not limited to all documents relating to the "data and assumptions" utilized in support of that document(s).
2. Item 2(c) of SBA's First Requests for Production requested that Duke produce all documentation relating to "all forecast(s) of commodity prices used in production cost modeling, including but not limited to gas, coal, oil, power, capacity, and emissions" supporting any Avoided Cost Methodology or Calculation. Response 1(c) referred SBA to "the Companies' CONFIDENTIAL response to SBA Interrogatory 1-G." Interrogatory

1-G provides gas, coal, oil, and emissions prices does not provide power or capacity prices. Please produce all forecasts of power or capacity prices responsive to Request for Production 1(c).

3. Please refer to the Solar Capacity Value Study completed by Astrape Consulting in 2018, which states: "Loads for each external region were developed in a similar manner as the DEC loads. A relationship between hourly weather and publicly available hourly load was developed based on recent history, and then this relationship was applied to 36 years of weather data to develop 36 load shapes."
 - a. Please provide the hourly load data for each external region used in the Capacity Value Study.
 - b. Please identify how many MW of external resources were assumed to be available for neighbor assistance during each hour of the LOLH analysis.
4. Please refer to Duke's response to SBA First Interrogatory 1-d, including confidential file "DEC_DEP Hourly LOLE_SBA DR 1-D_CONFIDENTIAL.xlsx." Please provide an updated version of this analysis that includes the following modified inputs (and no other changes):
 - a. 1,031 MW of demand response in winter for DEC and 1,015 MW of demand response in winter for DEP.
 - b. Available assistance from each neighbor (in MW) increased by 20% in all hours.
5. Produce all documents related to any resource adequacy study relied on by You in support of any Avoided Cost Calculation or Methodology, including but not limited to Astrape Consulting's 2016 DEC and DEP Resource Adequacy (RA) Studies.
 - c. constructed at each site, and specify whether those units were constructed as part of the same project(s) or as part of different projects.
17. With respect to Your Avoided Cost Calculations for standard offer QFs:
 - a. On what date do you assume standard offer projects will begin delivering power, for purposes of calculating Avoided Cost rates? Please describe in detail the bases for this assumption.
 - b. Please state the actual in-service date for each QF projects that has contracted with DEC or DEP under the Schedule PP (SC) and Schedule PP-2 tariffs approved by the South Carolina Public Service Commission in Docket No. 1995-1192-E, Order No. 2016-349.

18. Please describe the methodology(ies) used by You to calculate the cost or value of “ancillary services provided by” small power producers, as referenced in S.C. Code Ann. § 58-41-20(B)(3).
19. With respect to the calculation of Avoided Cost values for “non-Standard Offer PPA QFs,” as described on page 29 of Mr. Snider’s testimony:
 - a. Please describe in detail the “generation profile” used by the Company to calculate avoided cost values for “non-standard Offer PPA QFs,” including the source(s) of data used to create this generation profile.
 - b. How will the generation profile be “updated” in the future, as referenced in Mr. Snider’s testimony?
 - c. Please describe in detail the basis for Mr. Snider’s statement that using a “solar-specific generation profile” will “ensure that the avoided energy rates calculated for non-Standard Offer PPA QFs most precisely equal the Companies’ actual avoided cost”?
20. Please provide a detailed definition of the term “controlled solar generator,” as it is used in Mr. Snider’s testimony, and the specific criteria (including but not limited to equipment configuration, operational conditions, and contractual requirements) You propose to use to determine whether a specific facility qualifies as a “controlled solar generator.”
21. Please provide a detailed quantification of the “historical realized operating reserves” (as that term is used in Mr. Wintermantel’s testimony) maintained by DEC and DEP, on a monthly basis, over the last ten (10) years.

NELSON MULLINS RILEY & SCARBOROUGH LLP

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August 28, 2019
 Columbia, South Carolina

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STATE OF SOUTH CAROLINA
BEFORE THE PUBLIC SERVICE COMMISSION

Docket No. 2019-185-E

IN RE: South Carolina Energy Freedom Act)
(H.3659) Proceeding to Establish Duke)
Energy Carolinas, LLC's Standard Offer,)
Avoided Cost Methodologies, Form)
Contract Power Purchase Agreements,) **CERTIFICATE OF SERVICE**
Commitment to Sell Forms, and Any)
Other Terms or Conditions Necessary)
(Includes Small Power Producers as)
Defined in 16 United States Code 796, as)
Amended) - S.C. Code Ann. Section 58-)
41-20(A))
)

This is to certify that I have caused to be served this day one copy of **SBA's THIRD**
INTERROGATORIES AND REQUESTS FOR PRODUCTION to the persons named below at the
addresses set forth via electronic mail:

Alexander W. Knowles Office of Regulatory Staff Email: aknowles@ors.sc.gov	Andrew M. Bateman Office of Regulatory Staff Email: abateman@ors.sc.gov
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/s/ Jeremy C. Hodges

Jeremy C. Hodges

Columbia, SC

August 28, 2019